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Notice of Allowability

Application No.

10/764,541

Examiner

Scott Bauer

Applicant(s)

TOMOHISA YAMAMOTO

Art Unit

2836

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to the Amendment of 5/11/2006.
2. ☒ The allowed claim(s) is/are 1-8.
3. ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 - a) ☒ All b) ☐ Some* c) ☐ None of the:
 1. ☒ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

* Certified copies not received: _____.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.

THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.

4. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
 5. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
 - (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
 - 1) ☐ hereto or 2) ☐ to Paper No./Mail Date _____.
 - (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date _____.
- Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
6. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Attachment(s)

- | | |
|---|---|
| 1. <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 5. <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 2. <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 6. <input type="checkbox"/> Interview Summary (PTO-413), Paper No./Mail Date _____ |
| 3. <input type="checkbox"/> Information Disclosure Statements (PTO-1449 or PTO/SB/08), Paper No./Mail Date _____ | 7. <input type="checkbox"/> Examiner's Amendment/Comment |
| 4. <input type="checkbox"/> Examiner's Comment Regarding Requirement for Deposit of Biological Material | 8. <input checked="" type="checkbox"/> Examiner's Statement of Reasons for Allowance |
| | 9. <input type="checkbox"/> Other _____ |

Reasons for Allowance

1. Claims 1-8 are allowed.
2. The following is an examiner's statement of reasons for allowance:
3. Claim 1 is allowable because the prior art of record does not teach or fairly suggest an over-temperature detection device for detecting an over-temperature condition of each of adjacently arranged power components wherein a first temperature detection component of the two temperature detection components is placed adjacent to any one of the sides of the power component, a second temperature detection component of two temperature detection components is placed adjacent to another side of the power component, and the at least two temperature detection components have temperature characteristics which correspond to the temperature detection signals and the temperature characteristics of the at least two temperature detection components are substantially equivalent to each other.

As Applicant states in the Amendment of 5/11/2006, the subject matter added to claim 1 overcomes the 102(b) rejection of Nishiura et al.

Jenkins (US 4,854,731) discloses a temperature sensing apparatus wherein two temperature sensing diodes (7) are placed adjacent and in thermal contact to a MOSFET switch (1) to sense an over-temperature. However, Jenkins does not teach

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that the two diodes are placed adjacent to different sides of the switch or that the temperature characteristics of the diodes are substantially equal.

Nagata et al. (US 5,918,982) teaches a method of temperature detecting using a forward voltage drop across a diode wherein the sensing diode is supplied by current from two constant current supply transistors. The reference teaches that a hysteresis width can be regulated to be constant against temperature changes if all devices in the temperature sensing circuit have the same temperature characteristics (column 4 lines 16-25). However, Nagata et al. does not teach the use of two detection devices. Further the reference cannot be combined with the above Nishiura reference as Nishiura depends on the difference temperature characteristics for operation.

Williams et al. (US 6,046,470) discloses a MOSFET with integral temperature detection diodes wherein a MOSFET (300) is monitored by temperature detection diodes (D2A & D2B). The two diodes same the same side of the switch and are required to have dissimilar temperature characteristics (column 7 lines 20-40) as demonstrated in Figure 15.

4. Claims 2- 7 are allowable as they depend from Claim 1, which is also allowable.
5. Claim 8 is allowable for reasons similar to claim 1.
6. Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably

accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

7. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Scott Bauer whose telephone number is 571-272-5986. The examiner can normally be reached on M-F 9am-6pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Brian Sircus can be reached on 571-272-2058. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

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STEPHEN W. JACKSON
PRIMARY EXAMINER